

**CALIFORNIA ENERGY COMMISSION**

1516 NINTH STREET  
SACRAMENTO, CA 95814-5512



March 25, 2002

Robert Cochran  
Project Manager  
Duke Energy North America  
505 14th Street, Suite 940  
Oakland, CA 94612

Dear Mr. Cochran:

**AVENAL ENERGY CENTER PROJECT (01-AFC-20) SECOND DATA REQUESTS**

Pursuant to Title 20, California Code of Regulations, section 1716, the California Energy Commission (Energy Commission) staff requests that Duke Energy North America supply the information specified in the enclosed data requests.

The subject areas addressed in the 27 attached data requests (Nos. 133-159) are air quality, biological resources, noise, soil and water, and visual resources. Other data requests may be submitted at a later date. The information requested is necessary to: 1) understand the project, 2) assess whether the project will result in significant environmental effects, and 3) assess project alternatives and mitigation measures.

Written responses to the enclosed data requests are due to the Energy Commission by April 25, 2002 or at such later date as may be agreed upon by the Energy Commission staff and the applicant.

If you are unable to provide the information requested in the data requests or object to providing it, you must contact the committee assigned to the project, and the project manager, within 10 days of receiving these requests stating your reason for delay or objections.

If you have any questions regarding the enclosed data requests, please call me at (916) 654-3999.

Sincerely,

Jim McKinney  
Siting Project Manager

Enclosure

cc: Proof of Service 01-AFC-20

AVENAL ENERGY (01-AFC-20)  
DATA REQUESTS

**Technical Area: Air Quality**

**Author:** Brewster Birdsall

## **BACKGROUND**

### **Modeling Methodology**

Since issuing the first Data Requests in January, staff has conducted additional review of the dispersion modeling analysis for air quality impacts. The following additional Data Requests seek further information that would support some of the technical assumptions used in the modeling analyses. Of concern is the receptor grid used in construction modeling analysis, the diurnal schedule of construction and hours-per-day of activity, the exhaust parameters assumed for construction equipment, and the exhaust parameters assumed for the emergency generator.

## **DATA REQUEST**

133. Preliminary review of the modeling files submitted electronically ("ave9512.out") indicates that the construction analysis was prepared without consideration of the full receptor grid. Contrary to the claim that the same receptor locations were used in both the construction and operation analyses (AFC Appendix 6.2, p. 6.2-4.6), none of the surrounding elevated terrain was found in the review of the dispersion model for construction. Please reassess impacts during construction using a full receptor grid that would capture impacts occurring on the nearby hills.
134. Preliminary review of the modeling files submitted electronically ("ave9512.out") indicates that the construction sources are modeled with emissions occurring only between the hours of 8 a.m. and 4 p.m. These hours are inconsistent with the 7 a.m. to 5:30 p.m. construction schedule anticipated for the project (AFC p. 2-81). Please describe the basis for modeling source operation for an eight-hour duration when approximately 10-hours daily is anticipated to be necessary, and please reevaluate ambient impacts based on the 10-hour daily schedule, if necessary.
135. Please provide the supporting calculations and source characteristics that were used to derive the assumption that construction equipment emissions should be modeled at a release height of 23.11 meters (AFC Appendix 6.2, p. 6.2-4.5). Please note that in a similar case presently before the CEC (Inland Empire Energy Center, 01-AFC-17), a more realistic release height of 4.6 meters was used.
136. Please provide vendor information or similar specification from a reputable source that was used to derive the assumption of a 915-degree Kelvin exhaust temperature for the diesel emergency generator (AFC Appendix 6.2, p. 6.2-2.6).

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**BACKGROUND**

Air quality modeling is based on a HRSG stack diameter of 5.486 meters, or 18 feet (AFC Appendix 6.2, Table 6.2-2.2). This is inconsistent with the 19 foot diameter claimed in the Facility Description (AFC p. 2-36).

**DATA REQUEST:**

137. Please verify the correct stack diameter for the HRSG exhaust, and update the air quality impact assessment if necessary.

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DATA REQUESTS

**Technical Area: Biological Resources**

**Authors:** Julie Colyer and Melinda Dorin

**BACKGROUND**

The United States Fish and Wildlife Service (USFWS) has written a letter (dated January 8, 2002) to GWF Energy, LLC (GWF) regarding their concern over GWF's proposed siting and landscaping plans for the Tracy Peaker Plant project in San Joaquin County. The USFWS requested GWF to "provide at least 300 feet of buffer from their facilities (including parking lots and landscaping) to the edge of the Delta Mendota Canal (DMC), to minimize disruption of kit fox breeding, foraging, and resting behavior." Additionally, USFWS stated that "planting tall trees is likely to result in the indirect take of kit fox by attracting large raptors that are known to prey on kit fox" and recommended "planting local native grasses, shrubs, and trees, such as valley oak, at low densities" instead. The Avenal Energy Project (AEP) is also proposed to be located near a major water canal, and has potentially similar circumstances, habitat types and impacts. These issues may also need to be addressed for the AEP.

**DATA REQUESTS**

138. In the AFC (Table 1.5-1, p. 1-8), it is stated that the closest distance to the San Luis Canal is 200 feet. Please describe this buffer zone in more detail. Does this 200-foot buffer zone begin at the edge of the project's landscaping component, power plant facilities, or laydown areas? Which part of the San Luis Canal is defined as the edge of the buffer zone? In addition, please describe any and all project components that are proposed to be within 300 feet of the San Luis Canal, and how close to the San Luis Canal they will be.
139. The AFC (Figure 6.13-18, p. 6.13-19) shows that part of a "tall dense evergreen screen" will be placed near the San Luis Canal. How far away (in feet) will the San Luis Canal (as defined in #1) be from the projected mature tree edge? In addition, please describe which tree and shrub species are under consideration.
140. Please provide a record of communication (ROC) with the USFWS stating whether a 300-foot buffer would be required for this project.

**BACKGROUND**

Staff would like more information regarding the location(s) of the lay-down area(s) in order to assess the potential impacts to biological resources.

**DATA REQUEST**

141. Please state the location(s) of the laydown area(s) (i.e. north-east, etc. on the project site)? Are they all within the proposed 148-acre project site?

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**BACKGROUND**

Staff needs to know the various future agricultural uses of the lands associated with the proposed transmission lines in order to determine the area's potential use by avian species.

**DATA REQUEST**

142. What will be the various future agricultural uses (i.e. cotton, garlic, etc.) of the lands associated with the proposed transmission line (i.e. out to 1,000 feet)? Will these crops require flooding? If so, for how long (in hours, days, or months) and what time of year (i.e., spring, fall, winter, summer)?

**BACKGROUND**

Lights can disorient migratory birds flying at night or attract wildlife, such as insects and insectivores (insect-eaters). Staff needs more information about the proposed lighting on the proposed AEP site and AEP exhaust stacks. This will help staff fully assess the potential for impacts to biological resources.

**DATA REQUEST**

143. Please provide staff with information regarding the proposed AEP night-time lighting including a) the amount (light, medium, or heavy use); b) the duration (time of night and days per year) of proposed lighting; c) whether or not the lighting on the proposed stacks will be flashing; and d) the color of lighting on the proposed stacks.

**BACKGROUND**

The AFC (p. 6.6-1) states that "There are no known native fish or wildlife species of commercial or recreational value that could be affected by the project". Staff needs more information on fish species in the San Luis Canal to fully assess the potential biological impacts.

**DATA REQUEST**

144. Please identify the native and non-native fish and/or wildlife species of commercial or recreational value in the San Luis Canal. Please specify if they are of commercial or recreational value (or both). Please estimate the size of any such populations. In addition, please identify if there is an area along the San Luis Canal close to the proposed power plant site that is used by anglers.

**BACKGROUND**

In the AFC (p. 6.6-30), the applicant anticipated that any and all construction impacts on the San Joaquin kit fox "will be mitigated via funds paid to the CNLM...." Recently the USFWS staff has expressed interest in using the Kern Water Bank (KWB)

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Compensation Bank instead of the Center for Natural Lands Management (CNLM). Energy Commission Staff need more information regarding the dialog (if any) between the applicant and the USFWS regarding this issue.

**DATA REQUEST**

145. Please provide a ROC with USFWS to staff on any discussions and/or agreements made regarding the use of the KWB Compensation Bank in place of the CNLM Compensation Bank.

**BACKGROUND**

Staff has received environmental documentation for the Transfer of 10,000 acre-feet per year of Banked Lower Kern River Water, the Kern River Restoration and Water Supply Project, and the Water Purchase Agreement Between Kern County Water Agency and the California Department of Water Resources for the Environmental Water Account. These documents do not fully cover all potential environmental effects, and there are continuing gaps in the information required by Energy Commission Staff to conduct a full environmental analysis. At the Data Request Response Workshop in Avenal on March 6, 2002, Barbara Brenner with Duke, stated that the surface water to be used at the proposed Avenal Power Plant is "new water." If this is water that has previously been purchased to supplement the Environmental Water Account and used for restoration or if this is "new water," then additional environmental documentation may be required.

**DATA REQUESTS**

146. Please provide documentation which shows that potential impacts to biological resources from the long-term transfer of water out of Kern County and to the proposed Avenal Energy Project have already been addressed and mitigated.
147. Provide information on where, and in what years, this water was discharged previously. What potential impacts to biological resources are to be expected if this water was previously discharged naturally to the environment within the local hydrologic cycle but is now transferred to a zero liquid discharge facility?

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**Technical Area: Noise**

**Author:** Bill Thiessen

**BACKGROUND**

During the March 6, 2002 Workshop for this project, Duke Energy informally stated that the residences that are about 2500 feet northwest of the northwest corner of the plant site are temporary and will be converted to non-residential uses. Duke's earlier response to Data Request No.51 concerning these residences was that they(it) was not a residence but the Kochergen Farms Ranch Office. Documentation is requested that states that the residences in question will be removed or converted to uses that are insensitive to noise.

**DATA REQUEST**

148. Please provide documentation that the residences that are approximately 2500 feet northwest of the northwest corner of the project site will be removed or converted into uses that are insensitive to noise. The documentation should include a time schedule for removal/conversion, and a description of what uses they will be converted into.

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**Technical Area: Soil & Water Resources**

**Author:** Kristine Uhlman, John Kessler and Lorraine White

**BACKGROUND**

Groundwater will be used for construction water needs (including pipeline testing) and for back up water supplied by nearby existing ground water wells (18-1, 18-4 and 24-5). Section 1.8.3 of the AFC states that “Water conservation measures will be implemented by the owner/operator of the surrounding lands (Kochergen Farms) to offset ground water that will be pumped from wells for the Project backup water supply.” Mr. Kochergen owns 2,000 acres of active orchard and row crop agricultural land and several irrigation wells. Less than half of the Kochergen Farms is in crop rotation and the information reported during the March 6th Workshop indicates that Mr. Kochergen is already using mechanized irrigation and water conservation methods across the Farm. Mr. Kochergen also stated during the March 6 Workshop that he had implemented ground water conservation practices prior to his negotiations with Duke Energy, and that he fully intends to continue pumping his wells to the extent of their capacity.

In Staff’s Data Request No. 77 (January 24, 2002), the applicant was asked to provide staff with a draft water conservation plan. The applicant’s February 25th responses to the CEC Data Requests included a Draft Ground Water Conservation Plan. After review, staff determined that this draft plan did not satisfy the initial request and staff discussed these deficiencies with the applicant during the March Workshop.

Duke Energy states in the Data Request Responses and during the workshop of March 6th, that their surface water use estimates are very conservative and are expected to result in a more than adequate supply to meet all conditions on an annual or daily basis. An increase in annual power demand beyond the levels that 2,250 AF of surface water can support are not expected, but if these conditions do arise then groundwater is available. The following data requests, formalize the workshop discussions regarding the deficiencies in the applicant’s initial responses.

**DATA REQUEST**

149. Please provide information on the potential annual maximum ground water demand. In calculating this volume, please assume 8,000 hours/year operation with 4,000 hours/year of duct burning and other operational conditions applied consistent with the assumptions and calculations made to support the project air emission credits and air quality permit (worst case scenario).
150. Please revise the water balance table provided to Staff on March 18th, 2002, ‘Addendum to Duke Energy Avenal, LLC’s February 25, 2002 Responses to California Energy Commission Data Requests’ to clearly represent when groundwater will be used and in what quantities.



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151. Please provide a corrected Ground Water Conservation plan that shows and discusses:
- a) Identification of the 'baseline' against which conservation methods will be measured.
  - b) Identification of irrigation water conservation measures proposed to be implemented to off-set ground water pumping. Specify if these measures will be implemented in anticipation of Project Site pumping or in response to the need for pumping. If implementation is in response to pumping, what will be the time delay between Project site ground water pumping/use and reduction in ground water pumping/use for irrigation? For example, crop rotation would be expected to require seasonal implementation and could occur several months after ground water backup water had been extracted.
  - c) Information on the responsible parties and or agreements that will be enforced to ensure that the conservation methods are implemented.
  - d) Information on past pumping practices that will be used to evaluate success of conservation efforts. Include in this information what wells would be involved in the monitoring program to measure conservation.
  - e) Explain anticipated changes in the time and season of use for various methods from current practice. Based on information provided regarding when back-up supplies would be required, please explain how conservation measures will ensure no increase in groundwater pumping for maximum daily, maximum monthly and maximum annual pumping.
  - f) Identification of the methodology proposed for monitoring and reporting of the no-net ground water pumping program. Please quantify the volume of groundwater that may be pumped during the non-irrigation season, when irrigation water conservation measures may not be applicable. Discuss proposed accounting methods that will be used to measure level of conservation.
  - g) Provide an example of how the water will be accounted for, monitored, and reported.
  - h) Provide all calculations, assumptions and formulas used in the development of the plan.
152. Please provide a Feasibility Study of water supply alternatives including (but not necessarily limited to) the following water sources in comparison to the proposed fresh water supply from the San Luis Canal:
- Brackish shallow ground water from the aquifer east of Interstate 5;
  - Supplemental recycled water from Corchoran; and,
  - Local ground water usage only.

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153. Please present the analysis and results for the proposed water supply and the alternatives as follows:
- a) Impacts on water use, other users and waste discharge from each alternative in comparison to those currently proposed for the project;
  - b) All economic factors considered and listed separately as line items (such as capital infrastructure and operating costs including water purchase, chemicals, pumping energy and; efficiency losses and economic impacts; etc.) and all assumptions and or vendor data to support these estimates;
  - c) Changes in plant and linear facility infrastructure required to support each technology;
  - d) Plant efficiency and output calculations and assumptions for each alternative considered;
  - e) Analysis to support determinations on environmental impacts (particularly land use, biological and cultural resources, agriculture and soils, geologic hazards, traffic & transportation and water resources);
  - f) All information sources and appropriate references; and
  - g) In addition to the detailed data, please provide a table summarizing the results of the Water Supply Alternative Analysis.

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**Technical Area: Visual Resources - Plume**

**Author:** William Walters

**BACKGROUND**

The Applicant has provided cooling tower and HRSG design and plume modeling information in Data Response Exhibit 126-1, which was provided to answer Data Requests 126 through 130. However, the information provided in Exhibit 126-1 did not include all of the information requested in Data Requests 126 through 130. Staff requires additional design data to perform the visual plume modeling analyses.

**DATA REQUEST**

154. Table 1 of Exhibit 126-1 did not include all requested data for the plant cooling tower. Please provide the design liquid to gas (L/G) ratio for the tower.
155. Table 1 of Exhibit 126-1 did not include all requested data for the plant cooling tower. Please provide the heat rejection rate, in MMBtu/hr or MW, for each of the eight cases presented in Table 1.
156. Table 3 of Exhibit 126-1 did not include all requested data for the chiller auxiliary cooling towers. Staff believes that the cooling load to the chiller cooling towers would be variable based on inlet air ambient conditions; therefore the single exhaust condition provided by the Applicant in Table 3 (without reference to the inlet air ambient conditions) does not provide enough information to model the plume potential for these cooling towers. Please provide exhaust data, similar to that provided in Table 3, for a minimum of two separate ambient conditions and reference the ambient temperature and relative humidity for each ambient case provided. Also, please provide the heat rejection rate for each of the ambient cases provided.
157. Table 3 of Exhibit 126-1 provides information that conflicts with the information provided on Page 6.2-27 of the AFC. Please confirm that each chiller will have a separate 4-Cell cooling tower, rather than the single cell identified in Table 3, and confirm that the information presented for the immediately preceding data request is based on that design assumption, or explain the rationale for the single cell assumption provided in Table 3.
158. Table 3 of Exhibit 126-1 did not provide enough information to adequately assess the chiller cooling towers. Please provide the design liquid to gas (L/G) ratio for the chiller cooling towers.
159. Exhibit 126-1 did not directly answer Data Request 130. Please confirm that inlet air foggers and/or steam injection will not be used for power augmentation.